

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
24 February 2005 (24.02.2005)

PCT

(10) International Publication Number
WO 2005/016993 A1

(51) International Patent Classification⁷: C08G 71/04, C08K 7/04, 9/04

(21) International Application Number: PCT/EP2004/051796

(22) International Filing Date: 13 August 2004 (13.08.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 03255011.3 13 August 2003 (13.08.2003) EP

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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(54) Title: NANOCOMPOSITES BASED ON POLYURETHANE OR POLYURETHANE-EPOXY HYBRID RESINS PREPARED AVOIDING ISOCYANATES

(57) Abstract: A fast curable non-isocyanate-based polyurethane- and polyurethane-epoxy network nanocomposite polymeric compositions are derived upon crosslinking a mixture comprising of natural or modified nano-clay [ionic phyllosilicate] with platelet thickness in the scale of A (~1 nm) and aspect ratio (length/thickness) higher than 10 (nm) preferably natural or modified montmorillonite with either a monomer(s) or oligomer(s) bearing at least one cyclocarbonate group or a mixture of the latter with an epoxy resin, with a hardener, which is a monomer or oligomer or mixtures therefrom, bearing primary and/or secondary amino groups. The use of the nanoclays reduces the gel time and increases the adhesion of the cured polyurethane and polyurethane/epoxy hybrid and also reduces its water absorption.